Burlingame Ladder and Fish Screens and Garden City/Lowden No. 2 Consolidation and Fish Passage Project

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Burlingame Ladder and Fish Screens and Garden City/Lowden No. 2 Consolidation and Fish Passage Project

Annual Report
October 1, 2002 - September 30, 2003

Prepared by

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Prepared for

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905 NE 11th Ave
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Contract No. 00007402
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Introduction and Project Location

The Gardena Farms Irrigation District #13 diversion is located near river mile 37 on the mainstem of the Walla Walla River in Walla Walla County, Washington, in the McBean Donation Claim, Township 6 North, and Range 35 East. The project area is bounded to the north by the north bank of the Walla Walla River, to the east and south by the District property boundary, and to the west by Mojonnier and Frog Hollow Roads. The diversion dam was replaced in 1965 when a poorly functioning fish ladder was built into the south end. The ladder was abandoned after a short period of time as it was constantly filling with river gravel and debris. The Washington Department of Fisheries installed a new set of fish screens in the diversion channel in 1977 and signed responsibility over to the District in 1978. The District operated and maintained these screens under the direction of the Washington Department of Fisheries and the Department of Fish and Wildlife until 1999.

The Garden City/Lowden No. 2 Diversion Consolidation and Fish Passage facility is located near river mile 31 on the mainstem of the Walla Walla River in Section 35, Township 7 North, and Range 34 East. The project area is bounded between McDonald Road to the south, the north bank of the Walla Walla River, and extends approximately 800 feet east and west along the Walla Walla River. Historically separate river rock push-up berms were placed across the Walla Walla River at each point of diversion. These river rock berms provided partial fish passage for downstream or upstream fish migration when flows were low but it was necessary to operate heavy machinery in the river on a regular basis to maintain these berms. The screens at these facilities were placed in the late 1970's by Washington Department of Fisheries and were in very degraded condition.

The Bonneville Power Administration (BPA) funded the process to replace outdated screening and passage facilities in the Walla Walla Basin at the request of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) beginning in 1996. BPA, District, National Marine Fisheries Service, Washington Department of Fish and Wildlife, Oregon Department of Fish and Wildlife, Washington Department of Ecology, CTUIR, and contractor staff met for more than a year and throughout the extent of the construction processes to enter into easement agreements, review and modify plan drawings, review and modify on-site work, and for final inspection and approval of the projects. The Burlingame fish ladder was completed and commissioned on January 19, 1999, and Burlingame screening facility was commissioned on October 14, 1999. Garden City/Lowden No. 2 Diversion Consolidation and Fish Passage Facility was commissioned on January 15, 2003. The District has operated and maintained the facilities following prescribed procedures, performing daily, weekly, and annual O&M activities, since the projects were commissioned. BPA and the District have contracted for O&M services since September 1, 2001. The District has participated in the Walla Walla Annual Operations Plan along with other basin entities since 1999.

Non-diversion Activities – Burlingame

The District did not divert water for irrigation during the performance period of this contract for the periods of October 1 through October 3, 2002, and January 8 through March 13, 2003, and from July 7 through the end of September 2003 at Burlingame. District personnel visited the Burlingame ladder and screen facility to perform regular O&M of the ladder, observe the diversion channel for fish presence, and to clean a fish exclusion screen at the exit to the screen bypass. District personnel and a contractor performed emergency instream work on March 7, 2003, to remove a gravel deposit that was blocking the upstream ladder exit and diversion gates for the canal. The work was performed after inspection from National Marine Fisheries Service and Washington Department of Fish and Wildlife personnel and discussion regarding the best method to perform the work. District personnel and contractor staff performed annual O&M for the facilities during the period of September 24 through 26, 2003. Screen O&M activities included cleaning muck and debris from around the screens and bypass with an excavator, hand shoveling in close to the screens, in the bypass slot, and under the debris rack, and pressure washing the screens. The diversion channel was cleaned down to the project's construction grade and the gravel deposits in the forebay above the diversion gates and ladder exit were removed by an excavator working on top of berms above the water line and from shore. Flood-deposited rock and debris was removed from below the dam and in front of the ladder entrances and lower ladder sluice gate. The streambed was shaped back to as near original construction grade as possible following the heavy riprap grade in the river channel. Rock and debris were removed to an adjacent property and several hundred yards of rock were stockpiled on site near the dam. The access road was repaired during this period as well. Two short sections of the dam were removed and the ladder was kept fully open over the course of the winter months and in September to facilitate passage and aid in drying of the diversion channel for maintenance. The dam was fully in place and the ladder was fully open during shutdown in July and August as per the Annual Operations Plan.

O&M personnel allowed a small amount of water through the diversion gates to facilitate fish escapement and survival and monitored the diversion channel closely for fish presence until fish could be removed from the facility after all dewatering events. CTUIR staff performed electro-fishing operations with District assistance to remove fish present in the diversion and bypass channels on January 24, 2003. All fish were removed to the adjacent Walla Walla River without incident. (See Attachment A.) Stuart Durfee provided written notification of the electro-fishing operation to the National Marine Fisheries Service and U.S. Fish & Wildlife Service.

Non-Diversion Activities – Garden City/Lowden No. 2

Lowden No. 2 and Garden City Ditch volunteers operated Garden City/Lowden No. 2 (GC/L2) prior to contracting from September 2002 through late November for irrigation and for stock water from December 1, 2002, through January 31, 2003. District personnel began contract activities at GC/L2 on February 1, 2003, during a high water event that caused flooding on the lower Walla Walla and brought a great deal of rock and debris to the facilities. A rock bar that was deposited from an upstream gravel bar

to near the dam in front of the fish screens and ladder rendered them inoperable. The screens were in a back eddy and the ladder exit was cut off from the main channel of the river. National Marine Fisheries Service and Washington Department of Fish and Wildlife personnel visited the site to discuss and approve proposed methods for completing the work. District personnel and a contractor performed emergency instream work on March 12, 2003, to remove the gravel deposit. The gravel removal process took several weeks due to flow conditions, involvement of Montgomery-Watson-Harza as the engineers for the newly completed project, and consultation with NOAA Fisheries and WDFW regarding the instream work required to restore proper function of the project.

District personnel performed daily, weekly, and monthly maintenance and operations duties during February and March. The rubber dam, fish ladder, fishscreen, air compressor, back-up generator, and general facility function and appearance were inspected as required. Debris was removed, oil, fuel, and fluid levels checked, air filters inspected, back-up generation was tested, and repair was performed as necessary.

Diversion Activities – Burlingame

The District diverted water at Burlingame for irrigation beginning October 4, 2002, and water was diverted until January 7, 2003, and again from March 14 through July 7, 2003. The automated gates at the diversion dam failed on December 17, 2002, and were out of service for the remainder of the fall 2002 irrigation season and until June 2 during the spring 2003 irrigation season. The District inquired about repairing the actuators but it took Rotork quite some time to supply a service technician. Rotork Control systems and parts are supplied from Europe, making parts and supplies difficult to obtain quickly. Cost estimates and history regarding ongoing expenses associated with the original actuators was enough to justify replacement cost. The District operated the screens within operating criteria throughout the delay using telephone monitoring and alarming in conjunction with extra site visits.

O&M personnel performed daily checks of the screen facility, bypass, dam, and ladder to ensure proper operation of the facilities and performed daily and weekly maintenance activities. Screen facility activities included general overall facility appearance, adjusting gates and settings to maintain screening criteria, checking the bypass for obstructions, cleaning debris from the screen debris rack, cleaning out the building once per week, and greasing the screens, checking and adding oil, and flushing the bypass twice per week. Ladder O&M activities included observing general appearance, checking the ladder for obstructions and gravel buildup, cleaning the debris rack, checking function of the dam and board adjustment, installing and removing low flow sills as necessary, and flushing the ladder twice per week. The jib crane, which has not been used since it was installed, was inspected, greased, and operated several times throughout the year to ensure proper function. District personnel sprayed unwanted vegetation with Rodeo (aquatic Glyphosate) in the riparian zone and Roundup (Glyphosate) in the upland areas or manually removed unwanted vegetation as needed.

District and contractor personnel performed an emergency debris and gravel removal operation on May 21 to allow irrigation diversion and water supply to the fish ladder to continue. The original non-functioning gates were replaced with new gate actuators on

June 1 and 2. The canal was de-watered on July 7, 2003, for the remainder of the performance period.

Diversion Activities – Garden City/Lowden No. 2

The GC/L2 diversion dam was inflated on March 29 and water was diverted for irrigation on March 31, 2003. Irrigation diversions continued throughout the rest of the performance period. Daily tasks included inspection and operational checks of the rubber dam, air compressor and screen cleaning system, and back-up generator including oil, fuel, and fluid levels, belts, air filters and equipment status on monitoring equipment. Gates were operated to ensure the project functioned within criteria and adequate irrigation water was delivered to the farms served by the project. District personnel cleaned debris from screens and ladder, walkways, and inlet channel as necessary. The building was cleaned, generator exercised, compressor drain valves inspected, and alarm systems were tested weekly. General appearance and function of the facility was maintained throughout the performance period and the site was inspected regularly for evidence of vandalism or broken equipment. District personnel worked with Caterpillar in Spokane to have warranty work performed on the fuel heating system for the back-up generator on three occasions. Unnecessary vegetation was sprayed with Rodeo or Roundup or manually removed as needed. Irrigation water was diverted throughout the irrigation season until the end of the performance period.

Project Coordination

District personnel coordinated activities at both facilities with Washington Department of Fish and Wildlife, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the Walla Walla Fish Passage Operations Project personnel as part of the Annual Operations Plan and on a situational basis throughout the performance period. The District provided information and cooperated with BPA and Services personnel regarding Biological Opinion progress. District personnel worked with Contracting Officers Technical Representative Ben Zelinsky and other BPA staff on operational, contractual, and financial issues associated with the performance of the contract. The District applied to WDFW and received new hydrologic work permits for both facilities. These applications were subject to State Environmental Policy Act review and the public comment process.

Methods and Materials

Food grade machinery grease and chain well lubricant are used at the screen facility where lubricants are most likely to contact water as per WDFW recommendation. Great care is taken when screens are greased and lubricants are checked, added to, or changed to ensure that petroleum products do not come in contact with water on either side of the screens. Seal replacement is normally accomplished during times when the system is dewatered to minimize possible impacts.

Annual O&M activities were conducted when the canal was dewatered. Instream work was confined to the instream work window as much as possible to avoid harm to fish and other aquatic life unless emergency conditions arose. Hydraulic Project Approval Permit guidelines were followed and equipment was kept out of the wetted stream bed whenever possible. Walla Walla Annual Operation Plan guidelines were followed

throughout the year to aid in passage and minimize impact on fish. District personnel visited the site more frequently during high water events to clear debris and during low flow to ensure that screen criteria were maintained.

Summary

Burlingame and Garden/City Lowden facilities presented more than usual challenges in FY2003. Burlingame operations were complicated by the December 2002 failure and extended wait to replace the automated diversion gates on June 2003. High water events over the course of the winter months brought about extra site visits to check and clear debris racks, bypass, screens, ladders, and dams. The District received emergency permission from WDFW to excavate in the forebay above the diversion gates and exit of the ladder at Burlingame in both March and May of 2003 and in March 2003 at Garden City/Lowden No. 2 and large amounts of gravel and debris was removed during annual maintenance at both facilities. District personnel assisted Walla Walla Fish Passage Operations Project staff during a fish salvage operation on January 24, 2003, and the District asked WDFW staff to identify fish below Burlingame screens on June 6. WDFW found only non-salmonid species. Annual heavy maintenance was performed at Burlingame in September. District personnel worked with Montgomery-Watson-Harza, BPA, and federal and state fisheries personnel to determine the proper repair for instream structures associated with Garden City/Lowden No. 2 and obtained permitting for same but the repair was not accomplished during the performance period. The project was postponed until October when there would be less water in the Walla Walla River due to renewed irrigation demand.

Attachment A

CTUIR Natural Production Staff	Eric Hoverson, Darryl Thompson, Tim Hanson
Walla Walla Fish Passage Operation Staff	Preston Bronson, Bill Duke, Brian Conner
GFID13 Assistance	Jason Montoya, Ryan McGreevy
Time	9:00 AM
Conditions	light rain with overcast

All fish were released near Burlingame Dam.

Estimated non-salmonid released

Species	Count
Dace	12
Shiner	40
Suckers	40
Pike Minnow	125
Sculpin	12
Chiselmouth	10
3-spine Stickelback	125

Salmonid released

Species	Count
Juvenile Spring Chinook	10
Rainbow Trout/Steelhead	12